

Multifunctional Erosion Resistant Icephobic Appliques for Rotorblades, Phase II

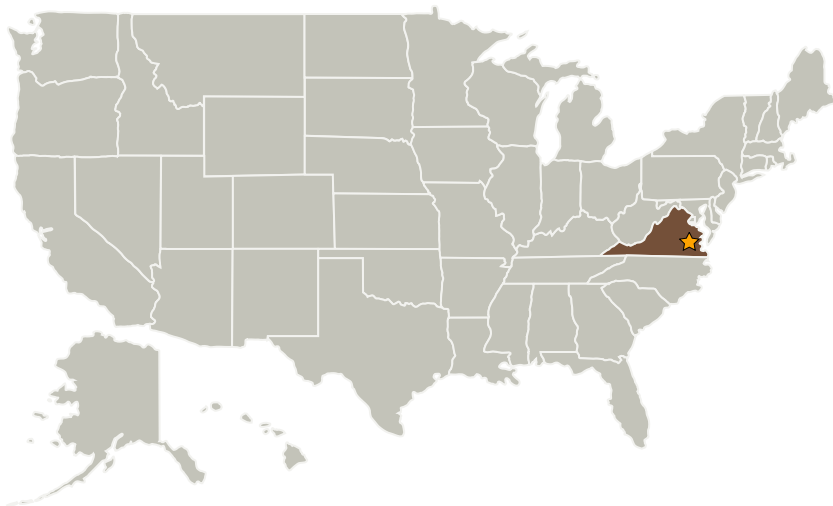
Completed Technology Project (2009 - 2011)



Project Introduction

The overall objective of this NASA SBIR program is to develop technology enablers for NASA's rotorcraft vision to facilitate rotorcraft operation in all weather environments. Specifically, NanoSonic will build on its successful completion of Phase I objectives and first generation test article demonstration to optimize, scale up, and qualify high performance, multifunctional, nanostructured, icephobic appliques with enhanced erosion resistance for rotorblade leading edges. Reliable all-weather service has specifically been identified as one of the barriers to achieving NASA's rotorcraft vision. To truly revolutionize air transportation mobility, rotorcraft must be able to operate in similar environments to current fixed wing vehicles -- including environmental conditions in which icing may occur. NanoSonic's multifunctional appliques will help to enable NASA's rotorcraft vision by completely preventing ice buildup on rotorblades. Implementation of NanoSonic's erosion resistant hydrophobic appliques will facilitate mission critical operations in icing conditions and mitigate concerns of vibration transmission and shudder that are associated with ice buildup. NanoSonic's appliques integrate erosion resistant nanocomposites, enhancing rotorcraft operation in high erosion environments. Maintenance and associated costs are reduced, as a new applique can be readily placed on the rotorblade leading edge when the existing applique has exhausted its functionality.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Nanosonic, Inc.	Supporting Organization	Industry	Pembroke, Virginia

Primary U.S. Work Locations

Virginia

Project Transitions



February 2009: Project Start



August 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.3 Aero Propulsion
 - └ TX01.3.11 Engine Icing